

# EXHIBIT 28



SCIENCE | EARTH DAY ISSUE

## Aerial photos show ‘the human planet’—in all its beauty and pain

A photographer spent years hanging from a paraglider, and later operating drones, to get amazing views of the Earth.

The 992-foot-high Kingdom Centre reflects its city: Riyadh, capital of Saudi Arabia, a kingdom built on abundant cheap oil. The tallest skyscraper in the country when it was completed in 2002, it's now fifth on the list.

PHOTOGRAPHS BY **GEORGE STEINMETZ**

BY **ROBERT KUNZIG**



PUBLISHED APRIL 21, 2020 • 11 MIN READ

On Friday, March 13, I returned one last time to National Geographic's deserted offices, which had closed the day before for an indefinite period. We had finished work on our April issue, devoted to the 50<sup>th</sup> anniversary of Earth Day, and it had already been overtaken by events. I packed up my computer, washed out my crusty coffee cup, disinfected my desk belatedly, and—thinking ahead to Earth Day itself—nabbed our only copy of George Steinmetz's gorgeous new book, *The Human Planet*.

The book was festooned with the photo editor's Post-it notes, selecting the pictures you see here. I needed it to write this brief introduction, but I also had a vague idea as I took possession that it might end up gracing my own coffee table permanently, rather than that of the photo editor. In these uncertain times we must seize opportunities where we can.

George Steinmetz was 12 on the first Earth Day in 1970. He does not remember much about it. He was climbing trees in his backyard in Beverly Hills, California, and finding that he liked the view. The population of California then (around 20 million) and of the world (around 3.7 billion) were almost exactly half what they are today. In 1979 Steinmetz left Stanford, where he was studying geophysics to prepare for a career in oil exploration, and spent a year hitchhiking around Africa with a camera. His first of many assignments for *National Geographic* came seven years later. Exploration happened, but not for oil.

Why does it feel so good to find new things out, or to see old things in new ways? If you could answer that question you could understand a lot of journalists. Steinmetz has been an unusually original one. He always liked aerial views, from helicopters or planes or treetops, but for an assignment in the Central Sahara in 1998, none of those were available. So he learned to fly a motorized paraglider—and did so “for about 15 years,” he told me recently, “until drones came along and democratized the low altitudes that I used to have all to myself.”

The view from those altitudes is “both sweeping and intimate,” as Andrew Revkin, another distinguished chronicler of the Anthropocene, points out in the text of *The Human Planet*. The idea that we live in a geologic epoch defined by our own impact on the planet—the Anthropocene—horrifies many environmentalists. Steinmetz is an “accidental environmentalist,” he writes: It was curiosity that propelled him to a hundred countries, it was delight that drew him into the sky. He just happened to be watching closely as humans were surging in numbers and power, and as our impacts were becoming planetwide and inescapable.

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Steinmetz's pictures offer us just enough distance to see what we're doing to Earth, but not so much that we feel detached. A sense of engagement and

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potential shines through them along with a sense of limits. “We can’t keep fighting against nature, we have to make peace with it, and that will require some concessions from all of us,” he writes. In these strange and unsettling days, may that wisdom spread.



Thousands converge for the annual crayfish-eating festival in Xuyi County, Jiangsu Province, China. Crayfish have been farmed since the 1990s in China, and with demand for the high-protein crustaceans on the rise, Xuyi County alone now has more than 32,000 acres... [Read More](#)

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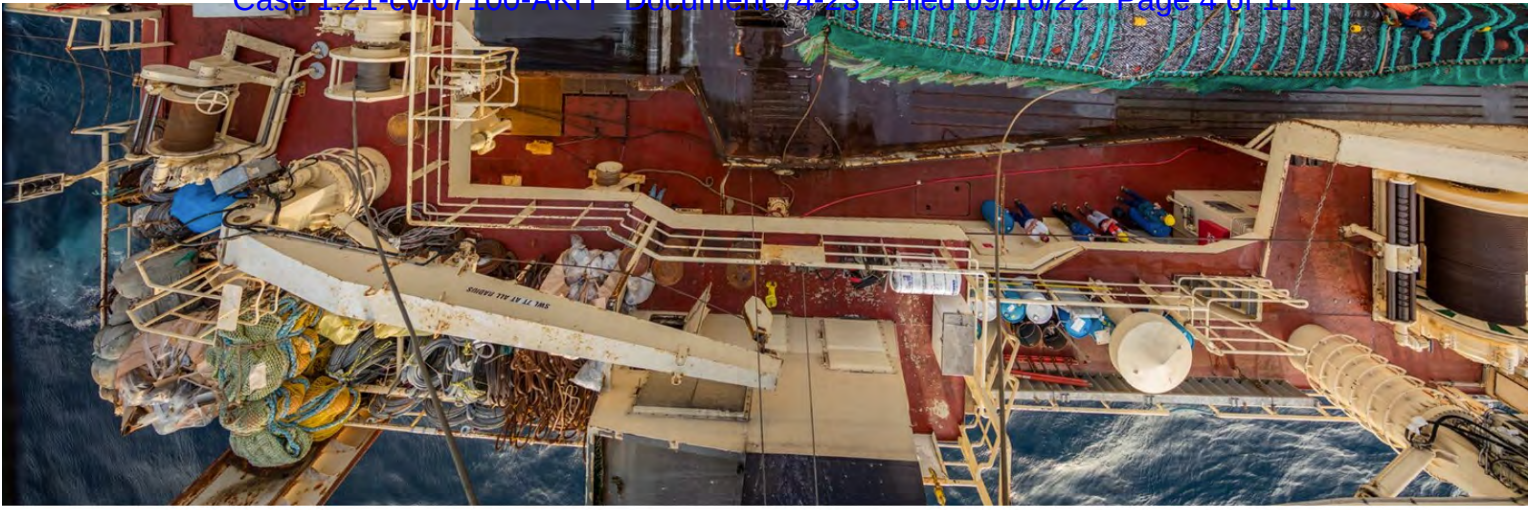
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Some 30 miles off the coast of Oregon, the C/P Alaska Ocean hauls in a 65-ton load of Pacific whiting, also known as hake. With a crew of 150, the 376-foot-long factory trawler processes its catch on board.

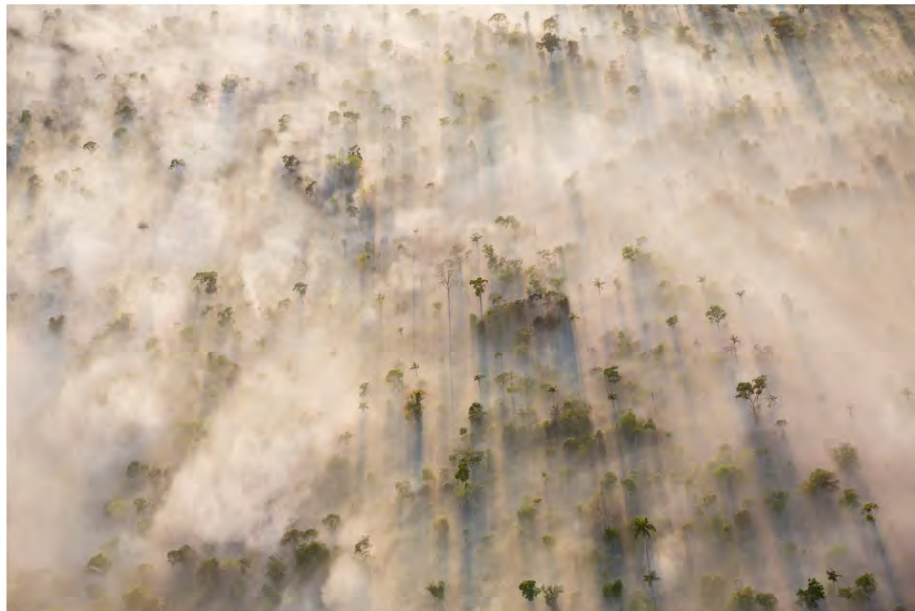


**Left:** In the Empty Quarter of southern Saudi Arabia, verdant crop circles, each more than half a mile across, spread across the desert. The wells feeding the center-pivot irrigation systems are as much as 650 deep and tap groundwater that is not being recharged—“fossil wat... [Read More](#)



**Right:** Laborers near Al Faw, Saudi Arabia, work their way through the rings of a crop circle, picking tomatoes and packing them to be shipped.

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Morning sunlight falls through the smoke from burning trees in Mato Grosso, near the center of



Brazil, thousands of square miles of forest have been burned and felled here to clear the land for cattle ranches and soy farms. Government efforts in the mid-2000s significantly... [Read More](#)



In October 2017 the Tubbs Fire virtually annihilated the suburban neighborhood of Coffey Park in Santa Rosa, California, destroying more than fourteen hundred homes—about one-quarter of the total number lost in Sonoma and Napa Counties. The fire was caused by an elec... [Read More](#)

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Near Port Angeles in Washington State, loggers have left thin screens of intact trees to hide large clear-cut areas. Scientists still debate the precise impact of such industrial forestry on climate; replanted trees may eventually absorb as much climate-warming carbon di... [Read More](#)




Calves conceived by artificial insemination shelter in 3,300 hutches at a Milk Source farm in Greenleaf, Wisconsin. Small dairy farms are closing at a record rate in America's "Dairy State," to be replaced by factory-style operations like Milk Source, which operates througho... [Read More](#)

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**Left:** The Greenland ice sheet is shrinking, both as the edges collapse into the sea and as the two-mile-high surface melts in summer heat—which researchers estimate is the main driver of ice loss. In 2017, two glaciologists used bright dye to track flows of meltwater near IL...[Read More](#)

**Right:** Chinstrap penguins waddle toward their nesting sites at Baily Head on Deception Island, the caldera of an active volcano off the north coast of the Antarctic Peninsula. When nesting, the birds make a daily commute down to the sea to feed, staining the snow pink on...[Read More](#)

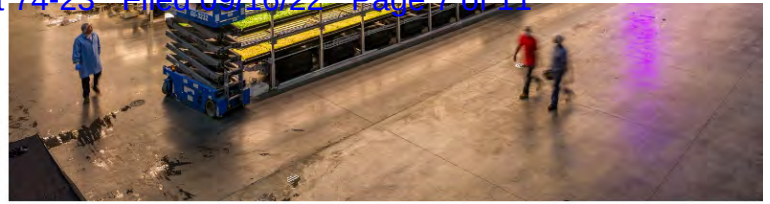


The main ferry terminal in Dhaka, the capital of Bangladesh, is a focal point of traffic on the heavily traveled Buriganga River. A city of more than 18 million, prone to flooding, Dhaka is receiving hundreds of thousands of migrants a year from coastal areas, where land l...[Read More](#)

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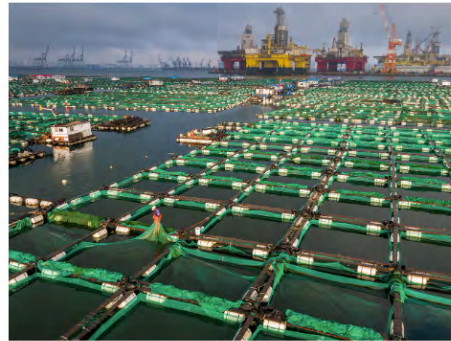






**Left:** The Koppert Cress greenhouses at Monster, Netherlands, may look festive, but their LED lighting has been designed to maximize growth efficiency, and the hammered glass reflects light back to the plants, minimizing light pollution. Koppert has enjoyed success wi... [Read More](#)

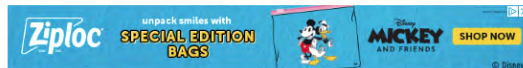
**Right:** At AeroFarms in Newark, New Jersey, growing plants are sprayed with a nutrient-rich solution, starting from seeds on mats. Vertical aeroponic farming is a promising technique where soil, water, and space are at a premium.



**Left:** Alga blooms cover the surface of Lake Tai in northeastern China. Thirty years ago, the waters were clear, but the lake is surrounded by cities such as Wuxi, Suzhou, and Changzhou, which have grown rapidly in the past few decades. Sewage dumping and runoff fro... [Read More](#)

**Right:** Floating sea cucumber pens share the harbor in Yantai, China, with the CIMC Raffles shipyard, where deep-water oil rigs are constructed. Sea cucumbers are invertebrate animals in the same family as sea urchin and starfish. Aquaculture can take pressure off overex... [Read More](#)

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Thieves stole 100,000 gallons of water from a desalination plant on Pate Island, in the Lamu archipelago, Kenya. Freshwater is a limited resource for the rapidly growing population. A desalination plant, which began operation in 2018, has brou... [Read More](#)

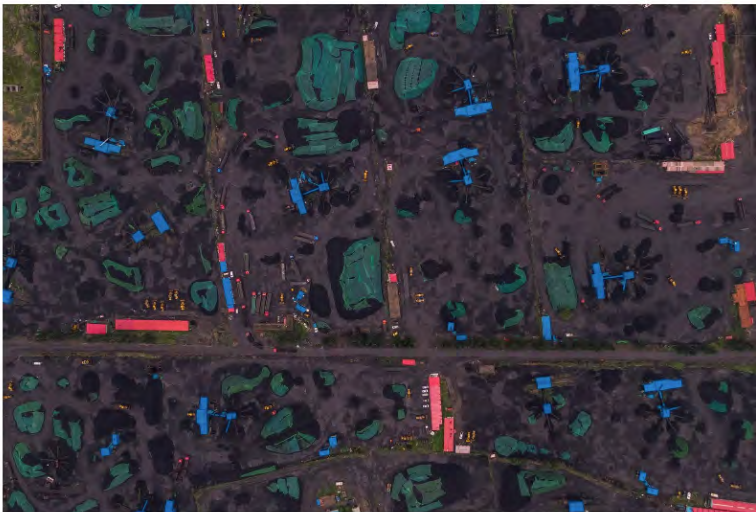


A day after Hurricane Harvey dumped more than fifty inches of rain on parts of Texas in August 2017, floodwaters had yet to recede from the Chevron Phillips Chemical Company refinery in Baytown. Scientists attributed Harvey's record rainfall in part to man-made climate... [Read More](#)

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**Left:** The Grasberg mine in Timika, Indonesia, is the world's largest mine, and the largest producer of gold and second-largest of copper. A boon to the Indonesian economy, the mine has been a source of tension between the government and citizens who blame it fo... [Read More](#)



**Right:** In this 18-mile-long open-air yard in Inner Mongolia, China, coal is sorted for the Tuoketuo coal-fired power plant, the biggest in the world. Satellite images show a black smudge all around this yard, despite fences intended to stop the spread of coal dust.



**Left:** Dozens of wind turbines sprout along a dike that long ago turned a five-hundred-square-mile stretch of tidal flats into farmland in Flevoland, northeast of Amsterdam, Netherlands. As wind turbines and solar panels get cheaper and more efficient, demand for energy... [Read More](#)

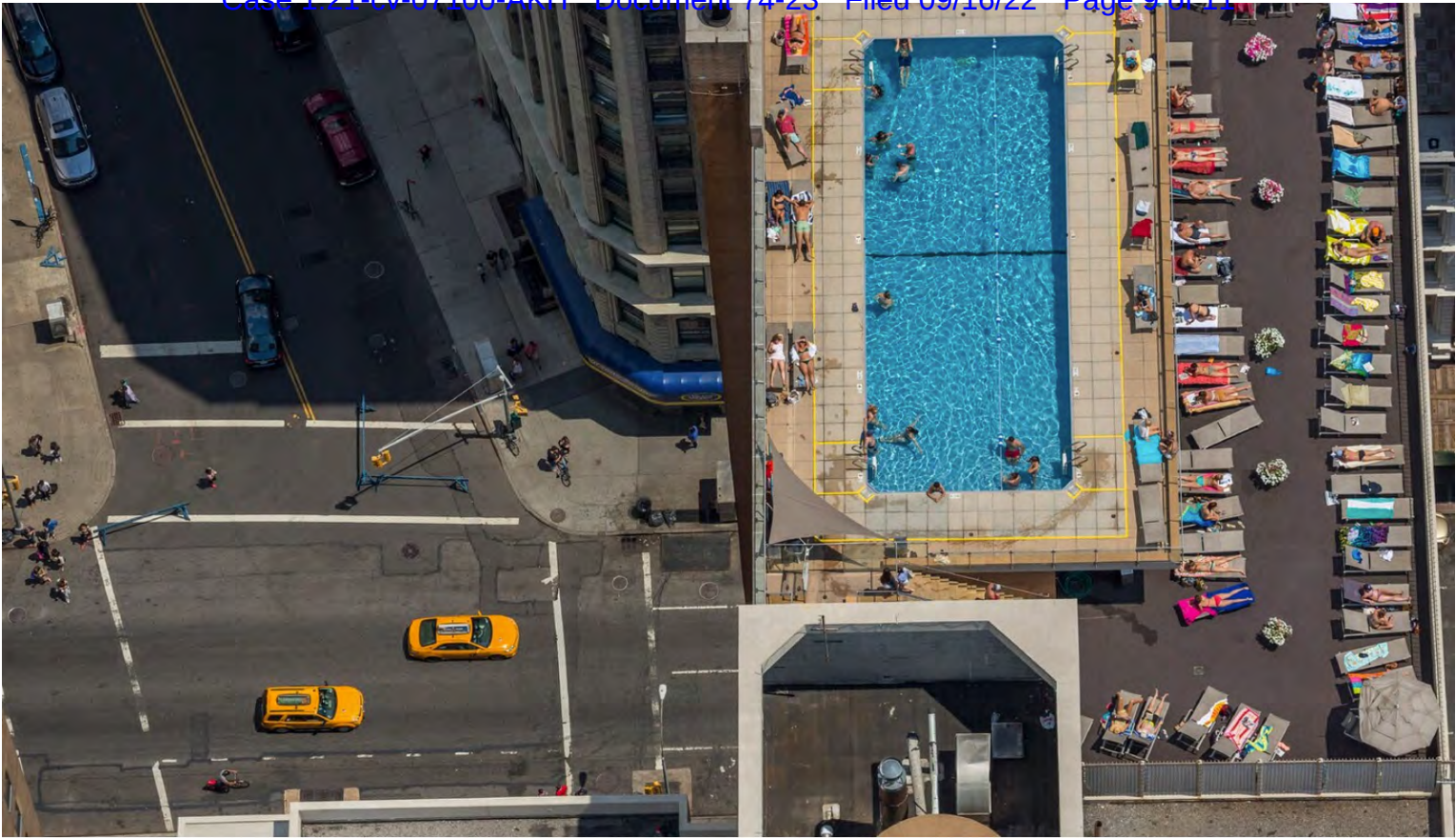


**Right:** Malé, capital of the Republic of Maldives, is far more densely populated than Manhattan, and the Maldives are one of the countries most vulnerable to sea level rise. Studies of some of the smaller members of this chain of 1,192 coral-fringed islets in the Indian Ocean sh... [Read More](#)

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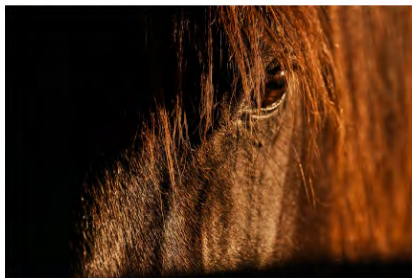
In the summer of 2014, New Yorkers escape the urban heat island in a rooftop pool in Greenwich Village. The city has one million buildings and an ambitious plan to increase energy efficiency by retrofitting the largest ones.

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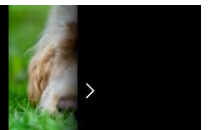
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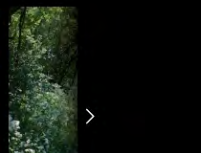
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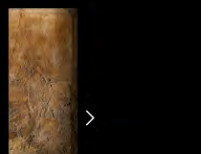
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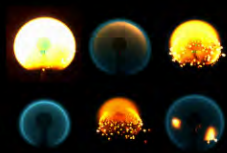
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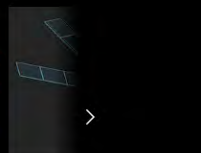
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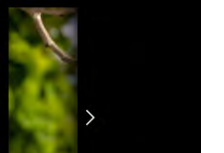
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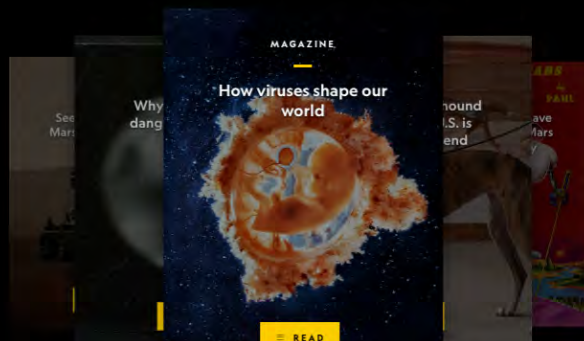
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